

Two new Chiggers from Australian Marsupials (Acari: Trombiculidae)

LEITH N. LESTER

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Ascoschoengastia deficiens, n.sp. is described from a native cat, *Dasyurus hallucatus* Gould (Marsupialia: Dasyuridae), in Western Australia; and *Guntheria insueta*, n.sp. from a marsupial mouse, *Sminthopsis crassicaudata* (Gould) (Dasyuridae), in South Australia. *Microtrombicula* Ewing, 1950 = *Ascoschoengastia* Ewing, 1946, n.syn.; *Zyzyomyacarus* Goff, 1979 = *Guntheria* Womersley, 1939, n. syn.

Leith N. Lester, School of Science, Griffith University, Nathan, Australia 4111 (formerly Queensland Institute of Medical Research, Brisbane, Australia 4006); manuscript received 5 April 1983, accepted for publication in revised form 20 July 1983.

Two new chiggers from isolated Australian localities are described below. The *Ascoschoengastia* was studied through the courtesy of Dr P. J. A. Presidente, Veterinary Clinical Centre, University of Melbourne, Werribee; the *Guntheria* was kindly provided by Mr D. C. Lee, South Australian Museum, Adelaide, with details from Dr I. Beveridge, Institute of Medical and Veterinary Science, Adelaide. The hosts are given after Ride (1970).

Genus *ASCOSCHOENGASTIA* Ewing

Ascoschoengastia Ewing, 1946: 71 (type-species *Neoschoengastia malayensis* Gater).

Microtrombicula Ewing, 1950: 297 (type-species *Microthrombidium minutissimum* Oudemans), n.syn. See notes below.

For definition see Nadchatram and Dohany (1974).

Ascoschoengastia deficiens, n.sp.

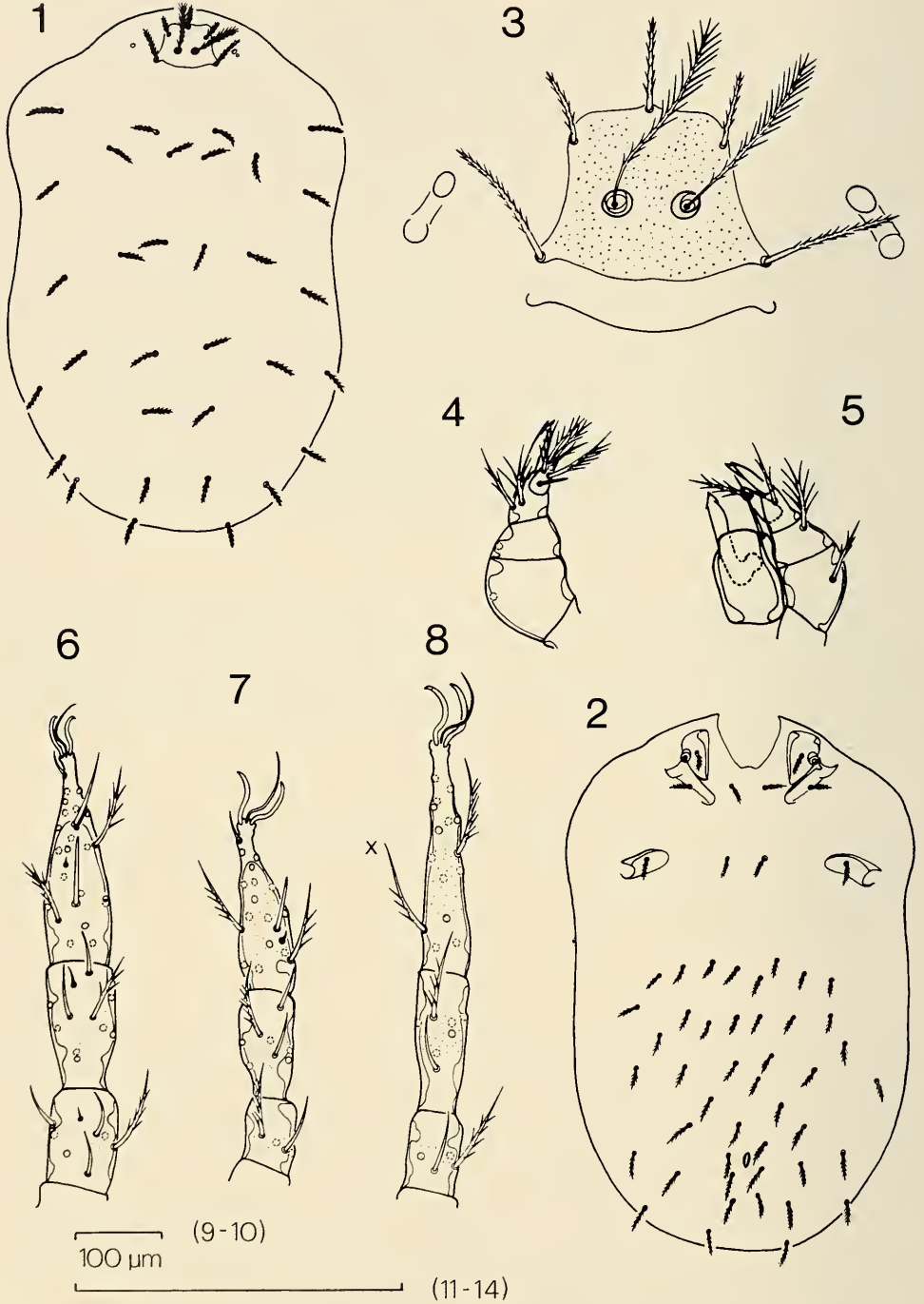
(Figs 1-8)

Material: Holotype larva and 110 paratype larvae, ear meatus of little northern native cats, *Dasyurus hallucatus* Gould (Marsupialia: Dasyuridae), Debatable Point, Mitchell Plateau, W.A., 17-18.vii.1982, P. J. A. Presidente. Holotype and 30 paratypes in Western Australian Museum, Perth; remaining paratypes divided between Bernice P. Bishop Museum, Honolulu; British Museum (Natural History), London; and Queensland Institute of Medical Research, Brisbane.

A soft oily or waxy deposit on these chiggers (removable with toluol) may indicate that they live deep in the ear meatus, as noted by Audy (1956) for *A. malayensis* (Gater).

Larva: Palpi (Figs 4-5) of usual proportions, with femur rounded externally; setation b.B.bbb.6B + T; claw two-pronged. Chelicerae unarmed except for usual tricuspid cap, bases unexpanded posterolaterally. Galeal setae N. Capitular setae B.

Body (Figs 1-2) slightly constricted behind shoulders when engorged; cuticle annulate. Dorsal setae typically arranged 2.8.6.6.4.4.2 = 32; first row varying from 6 to 10 (6 in 8/50 paratypes, 7 in six, 8 in 31, 9 in five; one specimen commencing 2.10.7 in another 60 paratypes examined only casually), with third and sixth setae in first row



Figs 1-8. *Ascoschoengastia deficiens*, larva. 1-2. Idiosoma, dorsal and ventral. 3. Scutum and eyes. 4-5. Palp and chelicera, ventral and dorsal. 6-8. Setation of legs I-III, about dorsal ('x' indicates a rarely present 15th seta).

TABLE 1

Standard data in μm of larval scutum of A. deficiens

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
46	71	20	29	24	53	32	35	25	41	61
46	71	22	29	24	53	32	34	26	42	61
46	67	19	29	27	56	34	34	25	46	64
49	64	18	27	27	54	30	34	27	47	64
48	68	20	30	24	54	34	34	23	46	64
49	68	18	27	24	51	29	34	25	41	65
47	63	18	28	25	53	30	34	25	43	60
44	65	18	30	26	56	31	37	25	43	65
48	71	19	30	23	53	32	34	23	42	61
44	66	19	29	24	53	35	36	25	42	60
47	67	19	29	25	54	32	35	25	43	63

moved forward as in *A. indica* (Hirst), except when only 6 are present. Intercoxal setae 2 + 2. Ventral setae about 44.

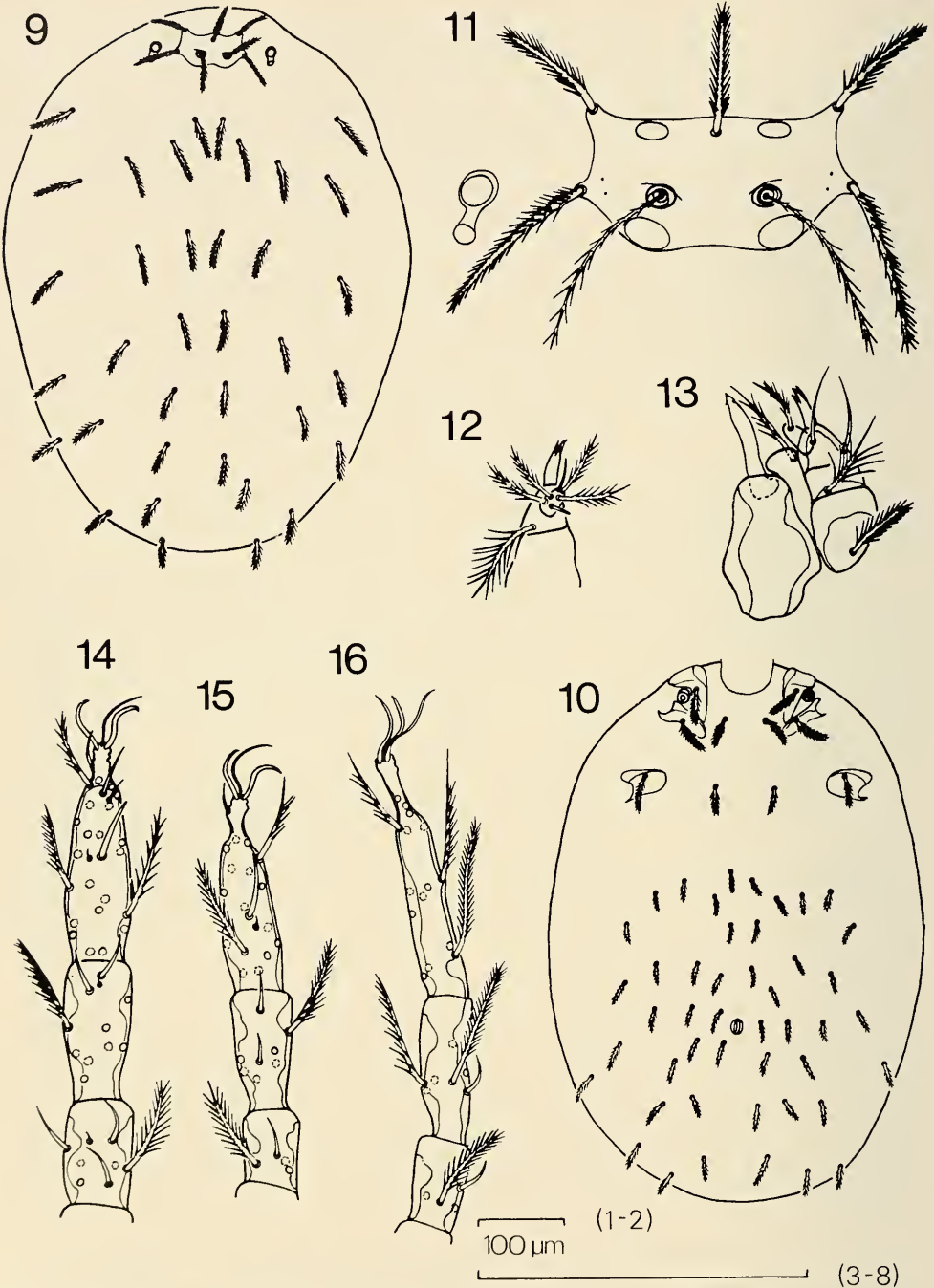
Scutum (Fig. 3, Table 1) subquadrate; anterior margin slightly sinuous, with distinct anterolateral shoulders; lateral margins slightly concave; posterior margin slightly, but variably convex; surface minutely punctate except behind sensillary bases and AM seta; PL > AM > AL, all with short ciliations; AL behind AM, on shoulders; PL on extended corners (two rather widely separated PL on one side of one paratype); sensillae set well in front of PL, filiform, strongly ciliated, especially in distal half. Eyes 2 + 2, posterior pair indistinct.

Legs 7.7.7-segmented. Specialized setae: Leg I (Fig. 6) with three genualae (anterobasal, anterodistal, posterodistal), microgenuala; two tibialae, microtibiala; tarsala, microtarsala (set distad of tarsala), subterminala, parasubterminala, pretarsala. Leg II (Fig. 7) with genuala; two tibialae; tarsala, microtarsala, pretarsala. Leg III (Fig. 8) with genuala; tibiala. Ordinary setae (none wholly nude, or long and outstanding; tarsus III with dorsobasal seta tending to be thinner and less strongly ciliated, but not a frank mastiseta): coxae 1.1.1; trochanters 1.1.1; basifemora 1.2.2; telofemora 5.4.3; genua 4.3.3; tibiae 8.6.6; tarsi 21.16.14 (rarely 15 when seta marked 'x' is present). Claws equal; empodia slender, without ciliations.

Notes: I now formalize the synonymy of *Microtrombicula* Ewing, 1950 and *Ascoschoengastia* Ewing, 1946 suggested by Domrow (1957) and Nadchatram and Dohany (1974). Womersley (1952) and Vercammen-Grandjean (1965) provided useful accounts of the species now included in the genus. In Womersley, the new Australian species keys out near a group of three Oriental species. It is sharply separated from *A. batui* (Philip and Traub) in having multi-branched sensillae, and from *A. munda* (Gater) and *A. spicea* (Gater) by the dorsal setal pattern commencing 2.8.6 and the strongly branched palpal setae.

The other Australian and Papuan species of *Ascoschoengastia* (Nadchatram, 1970; Nadchatram and Domrow, 1964) show clavate sensillae, with one exception. This is the hirsute *A. setosa* Goff, 1979a, from which the new species is readily distinguished by its unisetose coxa III and scutal proportions.*

* The original description of *A. setosa* stated that two genualae I were present but there are, in fact, three as in the new species (Goff *in litt.*, 23.ii.1983).



Figs 9-16. *Guntheria insueta*, larva. 9-10. Idiosoma, dorsal and ventral. 11. Scutum and eyes. 12-13. Palp and chelicera, ventral and dorsal. 14-16. Setation of legs I-III, about dorsal.

Euschoengastoides Loomis, 1954 (see also Loomis, 1971) also shows sensillae ranging from filiform to the frankly clavate.

The new specific name is the Latin adjective *deficiens* (wanting, lacking), and refers to the depleted setation of tarsi I (21B) and III (14B). Most chiggers have 22 and 15, respectively, though 14 is common on III in *Ascoschoengastia*.

Genus *GUNTHERIA* Womersley

Guntheria Womersley, 1939: 157 (type-species *Neoschoengastia kallipygos* Gunther).

Zyzomyacarus Goff, 1979a: 82 (type-species *Zyzomyacarus arguri* Goff), n.syn. See notes below.

For definition see Domrow (1960, 1971) and Goff (1980).

Guntheria insueta, n.sp.

(Figs 9-16)

Material: Holotype larva and twelve paratype larvae, fat-tailed dunnart, *Sminthopsis crassicaudata* (Gould) (Dasyuridae), Partacoona Station, near Hawker, Flinders Ranges, S.A., 13.xii.1972, D. Hayman. Holotype and eight paratypes in South Australian Museum, Adelaide; four paratypes in Queensland Institute of Medical Research, Brisbane.

Larva: Palpi (Figs 12-13) of usual proportions, with femur rounded externally; setation B.B.NNB.5BS + T; claw three-pronged. Chelicerae unarmed except for usual tricuspid cap, bases unexpanded posterolaterally. Galeal setae B. Capitular setae B.

Body (Figs 9-10) ovoid when engorged; cuticle annulate. Dorsal setae arranged 2.8.6.6.6.4.2.2 = 36. Intercoxal setae 2 + 2. Ventral setae about 46.

Scutum (Fig. 11, Table 2) rectangular; anterior margin sinuous, without shoulders; lateral margins concave; posterior margin clearly biconvex; surface without punctae except for two distinct pairs adjacent to PL; 'windows' present behind anterior margin and scutum with signs of thinning behind SB. PL > AM > AL, all with strong ciliations; AL in front of AM, not on shoulders; AL and PL on extended corners; sensillae set slightly behind PW, filiform, with ciliations somewhat longer distally. Eyes 2 + 2, anterior pair larger, but both pairs distinct.

Legs 7.7.7-segmented. Specialized setae: Leg I (Fig. 14) with three genualae (anterobasal, anterodistal, posterodistal), microgenuala; two tibialae, microtibiala; tarsala, microtarsala (set beside tarsala), subterminala, parasubterminala, pretarsala. Leg II (Fig. 15) with genuala; two tibialae; tarsala, microtarsala, pretarsala. Leg III (Fig. 16) with genuala; tibiala. Ordinary setae (none nude, or long and outstanding): coxae 1.1.1; trochanters 1.1.1; basifemora 1.2.2; telofemora 5.4.3; genua 4.3.3; tibiae 8.6.6; tarsi 22.16.15. Claws equal; empodia slender, without ciliations.

Notes: The first new species described above is one argument against maintaining the Trombiculini and Schoengastiini on sensillary shape alone (filiform *vs* expanded).

The second new species may well provide another. Although it has filiform sensillae, it fails to meet the detailed diagnoses to genera of Trombiculini in Vercammen-Grandjean (1960) and Nadchatram and Dohany (1974). Further, on a strict reading of Womersley's earlier key (1952) to the Oriental-Australian fauna, it runs out (depending on one's interpretation of couplet 68) near two species from India and Sri Lanka — *Trombicula gliricolens* (Hirst) and *T. jayewickirenei* Womersley — which show characters of *Leptotrombidium* Nagayo *et al.*, 1916, *e.g.* palpal tarsus 7B and two genualae I (Vercammen-Grandjean and Langston, 1976). Nor does it relate closely to subsequently-described Australian species of Trombiculini, *e.g.* those of Domrow (1959, 1964) and Goff (1979a, b). Most of these are specialized parasites of bats (Chiroptera), though some are from rats (Muridae).

TABLE 2

Standard data in μm of larval scutum of G. insueta

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
71	91	30	29	19	48	25	37	35	52	—
77	86	33	29	19	48	26	39	36	54	—
74	86	32	30	20	50	27	39	37	55	61
74	88	31	30	18	48	28	41	37	54	—
72	84	31	29	19	48	25	41	34	53	—
70	82	29	30	18	48	26	39	34	56	—
70	82	30	28	18	46	24	40	35	59	—
68	80	30	27	19	46	25	40	33	53	—
72	85	31	29	19	48	26	39	35	54	61

Conversely, although the second new species' filiform sensillae argue against its placement in the Schoengastiini, it is among these genera that it fits more comfortably. Thus it shares many characters with species of *Guntheria* Womersley, 1939 such as *G. newmani* (Womersley) and *G. peregrina* (Womersley), including: palpal setal formula B.b.NNb.5BS + T, palpal claw 2- to 3-pronged, dorsal setae commencing 2.8.6, scutum of similar proportions (transverse, with biconvex posterior margin, PL > AM > AL, SB set behind PL), three genualae I and hosts largely marsupials (never bats). The new species is closest to *G. newmani* in Domrow (1960, 1978), but can at once be separated by its filiform sensillae.

Zyzomyacarus, raised recently by Goff (1979a) for two species from an 'old-endemic' Australian rodent (Muridae), differs from *Guntheria* only in its very narrowly expanded sensillae (the other two distinguishing characters mentioned by Goff — eyes free, leg III lacking attenuated, finely ciliated, apically nude setae — in fact separate only a few species of *Guntheria* from *Zyzomyacarus*), and one can readily point to species of *Guntheria* which share many characters (e.g. palpal setal formula P.B.BBB.5B + T, galeal setae barbed, dorsal setae commencing 2.8.6, sensillae slenderly clavate, dorsal shield deeply convex posteriorly and two genualae I) with *Zyzomyacarus*: *G. dasycerci* (Hirst), *G. shieldsi* (Gunther) and possibly *G. bamaga* Domrow, *G. pertinax* Domrow and *G. pseudomys* (Womersley). I therefore synonymize *Zyzomyacarus* with *Guntheria*.

The new species can be separated from *G. arguri* (Goff), n.comb. and *G. napiensis* (Goff), n.comb. by having a palpal subterminala and three genualae I.

The new specific name is the feminine form of the Latin adjective *insuetus* (unusual).

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